

THE INTEGRATED CIRCUIT DATA BOOK



MOTOROLA Semiconductor Products Inc.

GENERAL INFORMATION

Index Interchangeability Guide Digital Circuits Applications Selector Guide

MECL

MECL MC300/MC350 Series MECL II MC1000/MC1200 Series

MHTL

MC660 Series

MTTL

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MDTL

MDTL MC930/MC830 Series DTL MC200/MC250 Series

MRTL

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MOS

MC1120P Series

COMPLEX ARRAYS

LINEAR

Application Selector Guide
Operational Amplifiers
High-Frequency Amplifiers
Power Amplifiers
Differential Amplifiers
Sense Amplifiers
Stereo Preamplifiers

APPLICATION NOTES

THE INTEGRATED CIRCUIT DATA BOOK

In the entire dynamic history of electronics, no facet of the industry has moved as rapidly from concept to implementation as has the field of integrated circuits. Already, after only 10 years of development, integrated circuits are replacing discrete-component circuits in all major computer applications and in many other digital functions as well. The linear area of applications, though somewhat lagging the digital field, is now expanding at a rate reminiscent of earlier days when new designs were emerging from the laboratories faster than they could be effectively introduced to the marketplace.

Since an integrated circuit represents a significantly larger portion of each equipment design than any single discrete component, the design engineers' cognizance of new products and their capabilities becomes increasingly vital. To the dissemination of this information, in the most useful form, the Integrated Circuit Data Book is dedicated.

This Data Book contains data sheet specifications and other applications and test data for all standard Motorola integrated circuits manufactured at the time of its publication. A complete, alpha-numeric index, page 1-1, lists and identifies all devices contained in the book and refers the reader to the proper section and page number where each device is fully characterized. Tabbed contents pages at the front and back of the book provide quick entry to the specific device section of interest.

The book covers both digital and linear integrated circuits. The digital families are subdivided as needed to group complete information for a specific logic series — data sheets and general information containing the major features and applications of that specific series. In addition, a complete "spread" of logic diagrams is included to permit quick selection of a first-order device lineup for most efficient system implementation.

The linear device section fully characterizes circuits encompassing the entire range of applications from audio to RF. A quick selection guide at the front of this section provides rapid comparison of the various circuits.

In view of the rapidly expanding technology, no book of this type can hope to remain current for any extended period of time. Therefore, the Integrated Circuit Data Book will be updated with a minimum of two supplements, as described on the following page, before the second edition of the Data Book will be published. In this way, it is hoped this effort provides a needed service that will result in significant savings of search time in the implementation of integrated circuit systems.

The information in this book has been carefully checked and is believed to be reliable; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of semiconductor devices any license under the patent rights of any manufacturer.

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DATA BOOK UPDATING SERVICE

Because of large numbers of new integrated circuit devices introduced each year, provisions have been made to update the Integrated Circuit Data Book through the publication of Supplements. At least two supplements will be published during the year. The Supplements will contain complete data sheets for newly added Motorola devices.

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1C2060F,P		4-81	MC9821F	mW MRTL	6-14
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INTERCHANGEABILITY GUIDE

The following cross-reference lists integrated circuits from a number of major manufacturers, and indicates the direct replacement type. Due to the variety of packages on the market, there may be slight differences in outline dimensions.

DIGITAL INTEGRATED CIRCUITS

MECL

Part Number	Motorola Direct Replacement	Description
RCA		
CD2150F	MC1050F	Dual 4-Input OR/NOR Gate
CD2151F	MC1051F	Dual 4-Input OR/NOR Gate
CD2152F	MC1052F	Single 8-Input OR/NOR Gate
Stewart- Warner		
SW301F	MC301F	5-Input OR/NOR Gate
SW301T	MC301G	5-Input OR/NOR Gate
SW302F	MC302F	R-S Flip-Flop
SW302T	MC302G	R-S Flip-Flop
SW303F	MC303F	Half Adder
SW303T	MC303G	Half Adder
SW304F	MC304F	Bias Driver
SW304T	MC304G	Bias Driver
SW305F	MC305F	5-Input Gate Expander
SW305T	MC305G	5-Input Gate Expander
SW306F	MC306F	3-Input OR/NOR Gate
SW306T	MC306G	3-Input OR/NOR Gate
SW307F	MC307F	3-Input OR/NOR Gate
SW307T	MC307G	3-Input OR/NOR Gate
SW308F	MC308F	AC-Coupled J-K Flip-Flop
SW308T	MC308G	AC-Coupled J-K Flip-Flop
SW309F	MC309F	Dual 2-Input NOR Gate
SW309T	MC309G	Dual 2-Input NOR Gate
SW310F	MC310F	Dual 2-Input NOR Gate
SW310T	MC310G	Dual 2-Input NOR Gate
SW311F	MC311F	Dual 2-Input NOR Gate
SW311T	MC311G	Dual 2-Input NOR Gate
SW351F SW351T	MC351F MC351G	5-Input OR/NOR Gate
SW352AF	MC352AF	5-Input OR/NOR Gate R-S Flip-Flop
SW352AT	MC352AF	R-S Flip-Flop
SW353F	MC353F	Half Adder
SW353T	MC353G	Half Adder
SW354F	MC354F	Bias Driver
SW354T	MC354G	Bias Driver
SW355F	MC355F	5-Input Gate Expander
SW355T	MC355G	5-Input Gate Expander
SW356F	MC356F	3-Input OR/NOR Gate
SW356T	MC356G	3-Input OR/NOR Gate
SW357F	MC357F	3-Input OR/NOR Gate
SW357T	MC357G	3-Input OR/NOR Gate
SW358AF	MC358AF	AC-Coupled J-K Flip-Flop
SW358AT	MC358AG	AC-Coupled J-K Flip-Flop

Part Number	Motorola Direct Replacement	Description
SW359F	MC359F	Dual 2-Input NOR Gate
SW359T	MC359G	Dual 2-Input NOR Gate
SW360F	MC360F	Dual 2-Input NOR Gate
SW360T	MC360G	Dual 2-Input NOR Gate
SW361F	MC361F	Dual 2-Input NOR Gate
SW361T	MC361G	Dual 2-Input NOR Gate
Westing- house		
WC377	MC1023P*	Dual 4-Input OR/NOR Clock Driver

^{*} Not pin-for-pin replacement

MTTL

Sylvania		
SF-10-02	MC513F	R-S Flip-Flop
SF-11-02	MC563F	R-S Flip-Flop
SF-12-02	MC413F	R-S Flip-Flop
SF-13-02	MC463F	R-S Flip-Flop
SF-50-02	MC515F	AND J-K Flip-Flop
SF-50-02 SF-51-02	MC565F	AND J-K Flip-Flop
SF-51-02 SF-52-02	MC415F	AND J-K Flip-Flop
SF-52-02 SF-52-P	MC415P	AND J-K Flip-Flop
SF-52-F SF-53-02	MC465F	AND J-K Flip-Flop
	MC465P	AND J-K Flip-Flop
SF-53-P		
SF-60-02	MC516F	OR J-K Flip-Flop
SF-61-02	MC566F	OR J-K Flip-Flop
SF-62-02	MC416F	OR J-K Flip-Flop
SF-62-P	MC416P	OR J-K Flip-Flop
SF-63-02	MC466F	OR J-K Flip-Flop
SF-63-P	MC466P	OR J-K Flip-Flop
SG-40-02	MC500F	Dual 4-Input NAND Gate
SG-41-02	MC550F	Dual 4-Input NAND Gate
SG-42-02	MC400F	Dual 4-Input NAND Gate
SG-42-P	MC400P	Dual 4-Input NAND Gate
SG-43-02	MC450F	Dual 4-Input NAND Gate
SG-43-P	MC450P	Dual 4-Input NAND Gate
SG-50-02	MC501F	Expandable 4-Wide
		2-2-2-3 Input
	<u>-</u>	AND-OR-INVERT Gate
SG-51-02	MC551F	Expandable 4-Wide
		2-2-2-3 Input
		AND-OR-INVERT Gate
SG-52-02	MC401F	Expandable 4-Wide
	ł	2-2-2-3 Input
	İ	AND-OR-INVERT Gate
SG-52-P	MC401P	Expandable 4-Wide
00-02-1	""	2-2-2-3 Input
	ł	AND-OR-INVERT Gate
	1	AND-ON-INVENTIGATE

MTTL (cont.)

MTTL (cont.)		
Part Number	Motorola Direct Replacement	Description
SG-53-02	MC451F	Expandable 4-Wide
30-55-02	10104011	2-2-2-3 Input
	1	AND-OR-INVERT Gate
SG-53-P	MC451P	Expandable 4-Wide
		2-2-2-3 Input
		AND-OR-INVERT Gate
SG-60-02	MC502F	Single 8-Input NAND
SG-61-02	MC552F	Gate Single 8-Input NAND
00-01-02	1000021	Gate
SG-62-02	MC402F	Single 8-Input NAND
F		Gate
SG-62-P	MC402P	Single 8-Input NAND
00.00.00	MOAFOE	Gate
SG-63-02	MC452F	Single 8-Input NAND Gate
SG-63-P	MC452P	Single 8-Input NAND
0000.		Gate
SG-70-02	MC520F	Dual Expandable
		2-Wide, 2-Input
		AND-OR-INVERT Gate
SG-71-02	MC570F	Dual Expandable
		2-Wide, 2-Input
SG-72-02	MC420F	AND-OR-INVERT Gate Dual Expandable
30-72-02	10104201	2-Wide, 2-Input
		AND-OR-INVERT Gate
SG-72-P	MC420P	Dual Expandable
		2-Wide, 2-Input
00 70 00		AND-OR-INVERT Gate
SG-73-02	MC470F	Dual Expandable
	1	2-Wide, 2-Input AND-OR-INVERT Gate
SG-73-P	MC470P	Dual Expandable
		2-Wide, 2-Input
		AND-OR-INVERT Gate
SG-90-02	MC503F	2-Wide 3-Input
	!	AND-OR-INVERT Gate
SG-91-02	MC553F	with Gated Complement 2-Wide 3-Input
30-91-02	MICSSSF	AND-OR-INVERT Gate
		with Gated Complement
SG-92-02	MC403F	2-Wide 3-Input
		AND-OR-INVERT Gate
		with Gated Complement
SG-93-02	MC453F	2-Wide 3-Input
		AND-OR-INVERT Gate with Gated Complement
SG-100-02	MC504F	Expandable 3-Wide
		3-Input
	[AND-OR-INVERT Gate
SG-101-02	MC554F	Expandable 3-Wide
	1	3-Input AND-OR-INVERT Gate
SG-102-02	MC404F	Expandable 3-Wide
00 102 02	11104041	3-Input
		AND-OR-INVERT Gate
SG-102-P	MC404P	Expandable 3-Wide
		3-Input
00 102 00	MOAEAE	AND-OR-INVERT Gate
SG-103-02	MC454F	Expandable 3-Wide 3-Input
		AND-OR-INVERT Gate
SG-103-P	MC454P	Expandable 3-Wide
3G-103-F	WICHOMF	3-Input
		AND-OR-INVERT Gate
SG-110-02	MC505F	Expandable 2-Wide
		4-Input
		AND-OR-INVERT Gate
SG-111-02	MC555F	Expandable 2-Wide
]		4-Input
	L	AND-OR-INVERT Gate

	Matarala	f
Part Number	Motorola Direct Replacement	Description
SG-112-02	MC405F	Expandable 2-Wide
SG-112-P	MC405P	4-Input AND-OR-INVERT Gate Expandable 2-Wide
SG-113-02	MC455F	4-Input AND-OR-INVERT Gate Expandable 2-Wide 4-Input
SG-113-P	MC455P	AND-OR-INVERT Gate Expandable 2-Wide 4-Input
SG-120-02	MC506F	AND-OR-INVERT Gate Expandable 8-Input
SG-121-02	MC556F	NAND Gate Expandable 8-Input NAND Gate
SG-122-02	MC406F	Expandable 8-Input NAND Gate
SG-123-02	MC456F	Expandable 8-Input NAND Gate
SG-130-02	MC507F	Dual 4-Input Line Driver
\$G-131-02	MC557F	Dual 4-Input Line Driver
SG-132-02	MC407F	Dual 4-Input Line Driver
SG-132-P	MC407P	Dual 4-Input Line Driver
SG-133-02	MC457F	Dual 4-Input Line Driver
SG-133-P	MC457P	Dual 4-Input Line Driver
SG-140-02	MC508F	Quad 2-Input NAND Gate
SG-141-02	MC558F	Quad 2-Input NAND Gate
SG-142-02	MC408F	Quad 2-Input NAND Gate
SG-142-P	MC408P	Quad 2-Input NAND Gate
SG-143-02	MC458F	Quad 2-Input NAND Gate
SG-143-P	MC458P	Quad 2-Input NAND Gate
SG-150-02	MC509F	4-Wide 3-2-2-3 Input Expander for AND-
SG-151-02	MC559F	OR-INVERT Gates 4-Wide 3-2-2-3 Input
		Expander for AND- OR-INVERT Gates
SG-152-02	MC409F	4-Wide 3-2-2-3 Input Expander for AND-
SG-152-P	MC409P	OR-INVERT Gates 4-Wide 3-2-2-3 Input
		Expander for AND- OR-INVERT Gates
SG-153-02	MC459F	4-Wide 3-2-2-3 Input Expander for AND-
SG-153-P	MC459P	OR-INVERT Gates 4-Wide 3-2-2-3 Input Expander for AND- OR-INVERT Gates
SG-170-02	MC510F	Dual 4-Input Expander for AND-OR-INVERT
SG-171-02	MC560F	Gates Dual 4-Input Expander for AND-OR-INVERT Gates
SG-172-02	MC410F	Dual 4-Input Expander for AND-OR-INVERT Gates

MTTL (cont.)

WITTE (CONL.)				
Part Number	Motorola Direct Replacement	Description		
SG-172-P	MC410P	Dual 4-Input Expander for AND-OR-INVERT Gates		
SG-173-02	MC460F	Dual 4-Input Expander for AND-OR-INVERT Gates		
SG-173-P	MC460P	Dual 4-Input Expander for AND-OR-INVERT Gates		
SG-180-02	MC511F	Dual 4-Input Expander for NAND Gates		
SG-181-02	MC561F	Dual 4-Input Expander for NAND Gates		
SG-182-02	MC411F	Dual 4-Input Expander for NAND Gates		
SG-183-02	MC461F	Dual 4-Input Expander for NAND Gates		
SG-190-02	MC512F	Triple 3-Input NAND Gate		
SG-191-02	MC562F	Triple 3-Input NAND Gate		
SG-192-02	MC412F	Triple 3-Input NAND Gate		
SG-192-P	MC412P	Triple 3-Input NAND		
SG-193-02	MC462F	Triple 3-Input NAND Gate		
SG-193-P	MC462P	Triple 3-Input NAND Gate		

MTTL II

	Sylvania	-	`
1	SF-250-02	MC2109F	AND J-K Flip-Flop
1	SF-251-02	MC2159F	AND J-K Flip-Flop
1	SF-252-02	MC2009F	AND J-K Flip-Flop
ı	SF-253-02	MC2059F	AND J-K Flip-Flop
.	SF-260-02	MC2110F	OR J-K Flip-Flop
1	SF-261-02	MC2160F	OR J-K Flip-Flop
	SF-262-02	MC2010F	OR J-K Flip-Flop
	SF-263-02	MC2060F	OR J-K Flip-Flop
	SG-210-02	MC2100F	Expandable 2-Wide
	* 1		4-Input AND-OR
			INVERT Gate
	SG-211-02	MC2150F	Expandable 2-Wide
			4-Input AND-OR
i			INVERT Gate
	SG-212-02	MC2000F	Expandable 2-Wide
			4-Input AND-OR
			INVERT Gate
	SG-212-P	MC2000P	Expandable 2-Wide
		'	4-Input AND-OR
			INVERT Gate
	SG-213-02	MC2050F	Expandable 2-Wide
			4-Input AND-OR INVERT Gate
	SG-213-P	MC2050P	Expandable 2-Wide
	3G-213-P	IVICZUSUP	4-Input AND-OR
			INVERT Gate
-	SG-220-02	MC2101F	Quad 2-Input NAND
	00-220-02	WO21011	Gate
	SG-221-02	MC2151F	Quad 2-Input NAND
			Gate
	SG-222-02	MC2001F	Quad 2-Input NAND
			Gate
	SG-222-P	MC2001P	Quad 2-Input NAND
			Gate
	SG-223-02	MC2051F	Quad 2-Input NAND
			Gate
	SG-223-P	MC2051P	Quad 2-Input NAND
		'	Gate
	,	ı	I

Part Number	Metorola Direct Replacement	Description
SG-230-02	MC2102F	4-Wide 3-2-2-3 Input
30-230-02	MOZIOZI	Expander for AND-
SG-231-02	MC2152F	OR-INVERT Gates
50-231-02	WCZ 152F	4-Wide 3-2-2-3 Input Expander for AND-
		OR-INVERT Gates
SG-232-02	MC2002F	4-Wide 3-2-2-3 Input Expander for AND-
		OR-INVERT Gates
SG-232-P	MC2002P	4-Wide 3-2-2-3 Input Expander for AND-
		OR-INVERT Gates
SG-233-02	MC2052F	4-Wide 3-2-2-3 Input Expander for AND-
		OR-INVERT Gates
SG-233-P	MC2052P	4-Wide 3-2-2-3 Input
		Expander for AND- OR-INVERT Gates
SG-240-02	MC2103F	Dual 4-Input NAND
SG-241-02	MC2153F	Gate Dual 4-Input NAND
		Gate
SG-242-02	MC2003F	Dual 4-Input NAND Gate
SG-242-P	MC2003P	Dual 4-Input NAND
SG-243-02	MC2053F	Dual 4-Input NAND Gate
SG-243-P	MC2053P	Dual 4-Input NAND
SG-250-02	MC2104F	Gate Expandable 4-Wide
		2-2-2-3 Input
SG-251-02	MC2154F	AND-OR-INVERT Gate Expandable 4-Wide
		2-2-2-3 Input
SG-252-02	MC2004F	AND-OR-INVERT Gate Expandable 4-Wide
		2-2-2-3 Input
SG-252-P	MC2004P	AND-OR-INVERT Gate Expandable 4-Wide
00 202 .		2-2-2-3 Input
SG-253-02	MC2054F	AND-OR-INVERT Gate Expandable 4-Wide
00-200-02	10200-11	2-2-2-3 Input
SG-253-P	MC2054P	AND-OR-INVERT Gate Expandable 4-Wide
30-2331	1410200-4	2-2-2-3 Input
SC 360 03	MC2105F	AND-OR-INVERT Gate Single 8-Input NAND
SG-260-02	WIGZ TOOF	Gate
SG-261-02	MC2155F	Single 8-Input NAND
SG-262-02	MC2005F	Gate Single 8-Input NAND
SG-262-P	MC2005P	Gate Single 8-Input NAND
SG-263-02	MC2055F	Gate Single 8-i nput NAND
SG-263-P	MC2055P	Gate Single 8-Input NAND
		Gate
SG-270-02	MC2106F	Dual 4-Input Expander for AND-OR-
SG-271-02	MC2156F	INVERT Gates Dual 4-Input Expander
3327132		for AND-OR-
SG-272-02	MC2006F	INVERT Gates Dual 4-Input Expander
30-272-02	WICZUUDF	for AND-OR-
SC 272 B	MCOOCE	INVERT Gates
SG-272-P	MC2006P	Dual 4-Input Expander for AND-OR-
		INVERT Gates

MTTL II (cont.)

	Motorola	
Part Number	Direct Replacement	Description
SG-273-02	MC2056F	Dual 4-Input Expander for AND-OR- INVERT Gates
SG-273-P	MC2056P	Dual 4-Input Expander for AND-OR- INVERT Gates
SG-310-02	MC2113F	Dual Expandable 2-Wide, 2-Input AND-OR-INVERT Gate
SG-311-02	MC2163F	Dual Expandable 2-Wide, 2-Input AND-OR-INVERT Gate
SG-312-02	MC2013F	Dual Expandable 2-Wide, 2-Input AND-OR-INVERT Gate
SG-312-P	MC2013P	Dual Expandable 2-Wide, 2-Input AND-OR-INVERT Gate
SG-313-02	MC2063F	Dual Expandable 2-Wide, 2-Input AND-OR-INVERT Gate
SG-313-P	MC2063P	Dual Expandable 2-Wide, 2-Input AND-OR-INVERT Gate

MDTL

Fairchild		
U3I909351X	MC953F	Dual J-K Flip-Flop
U31909359X	MC853F	Dual J-K Flip-Flop
U3I909451X	MC956F	Dual J-K Flip-Flop
U31909459X	MC856F	Dual J-K Flip-Flop
U3I909751X	MC955F	Dual J-K Flip-Flop
U3I909759X	MC855F	Dual J-K Flip-Flop
U31909951X	MC952F	Dual J-K Flip-Flop
U31909959X	MC852F	Dual J-K Flip-Flop
U31993051X	MC930F	Dual 4-Input NAND Gate
U31993059X	MC830F	Dual 4-Input NAND Gate
U3I993151X	MC931F	Clocked Flip-Flop
U3I993159X	MC831F	Clocked Flip-Flop
U3I993251X	MC932F	Dual 4-Input Buffer
U31993259X	MC832F	Dual 4-Input Buffer
U31993351X	MC933F	Dual 4-Input Expander
U31993359X	MC833F	Dual 4-Input Expander
U31993651X	MC936F	Hex Inverter
U31993659X	MC836F	Hex Inverter
U31993751X	MC937F	Hex Inverter
U31993759X	MC837F	Hex Inverter
U3I994451 X	MC944F	Dual 4-Input Power NAND Gate
U31994459X	MC844F	Dual 4-Input Power NAND Gate
U31994551 X	MC945F	Clocked Flip-Flop
U3I994559X	MC845F	Clocked Flip-Flop
U3I994651X	MC946F	Quad 2-Input NAND Gate
U31994659X	MC846F	Quad 2-Input NAND Gate
U3I994851X	MC948F	Clocked Flip-Flop
U31994859X	MC848F	Clocked Flip-Flop
U3I994951X	MC949F	Quad 2-Input NAND Gate with 2 k Pullup Resistor
U31994959X	MC849F	Quad 2-Input NAND Gate with 2 k Pullup Resistor
U31995051X	MC950F	Pulse Triggered Binary
U31995059X	MC850F	Pulse Triggered Binary
U31995151X	MC951F	Monostable Multivibrate
-510001017	1	

	Meterals	
Part Number	Motorola Direct Replacement	Description
U3I995159X	MC851F	Monostable
		Multivibrator
U3I996151X	MC961F	Dual 4-Input NAND
		Gate with 2 k
:		Pullup Resistor
U3I996159X	MC861F	Dual 4-Input NAND
		Gate with 2 k
I ISIOOCOE45	MODEST	Pullup Resistor
U3I996251X	MC962F	Triple 3-Input NAND Gate
U3I996259X	MC862F	Triple 3-Input NAND
		Gate
U31996351X	MC963F	Triple 3-Input NAND
	[Gate with 2 k
Lipingggggg	MC863F	Pullup Resistor
U31996359X	WILODSF	Triple 3-Input NAND Gate with 2k
,	1	Pullup Resistor
U5F993051X	MC930G	Dual 3-2 Input NAND
		Gate
U5F993059X	MC830G	Dual 3-2 Input NAND
LEECON	MODELL	Gate
U5F993151X U5F993159X	MC931G MC831G	Clocked Flip-Flop Clocked Flip-Flop
U5F993159X U5F993251X	MC831G MC932G	Dual 3-2 Input Buffer
U5F993251X	MC832G	Dual 3-2 Input Buffer Dual 3-2 Input Buffer
U5F993351X	MC933G	Dual 4-3 Input Expander
U5F993359X	MC833G	Dual 4-3 Input Expander
U5F994451X	MC944G	Dual 3-2 Input Power
		NAND Gate
U5F994459X	MC844G	Dual 3-2 Input Power
		NAND Gate
U5F994551X	MC945G	Clocked Flip-Flop
U5F994559X	MC845G	Clocked Flip-Flop
U5F994651X	MC946G	Quad Inverter
U5F994659X	MC846G	Quad Inverter
U5F994851X U5F994859X	MC948G MC848G	Clocked Flip-Flop Clocked Flip-Flop
U5F994859X U5F994951X	MC949G	Quad Inverter with
25. 55-1551A		2 k Pullup Resistor
U5F994959X	MC849G	Quad Inverter with
		2 k Pullup Resistor
U5F995051X	MC950G	Pulse Triggered Binary
U5F995059X	MC850G	Pulse Triggered Binary
U5F995151X	MC951G	Monostable Multivibrator
U5F995159X	MC851G	Monostable
		Multivibrator
U5F996151X	MC961G	Dual 3-2 Input NAND
	1	Gate with 2 k
		Pullup Resistor
U5F996159X	MC861G	Dual 3-2 Input NAND
		Gate with Z k
U5F996251X	MC962G	Pullup Resistor Dual 2-Input NAND
001-990291X		Gate Plus Inverter
U5F996259X	MC862G	Dual 2-Input NAND
		Gate Plus Inverter
U5F996351X	MC963G	Dual 2-Input NAND
LIEROSCOTO	NADOCCE !	Gate Plus Inverter
U5F996359X	MC863G	Dual 2-Input NAND Gate Plus Inverter
U6A909359X	MC853P	Gate Plus Inverter Dual J-K Flip-Flop
U6A909459X	MC856P	Dual J-K Flip-Flop
U6A909759X	MC855P	Dual J-K Flip-Flop
U6A909959X	MC852P	Dual J-K Flip-Flop
U6A993059X	MC830P	Dual 4-Input NAND
1		Gate
U6A993159X	MC831P	Clocked Flip-Flop
U6A993259X	MC832P	Dual 4-Input Buffer
U6A993359X	MC833P	Dual 4-Input Gate
		Expander

MDTL (cont.)

MDTL (cont.		T	
Part	Motorola		
Number	Direct	Description	
	Replacement		
U6A993659X	MC836P	Hex Inverter	
U6A993759X U6A994459X	MC837P MC844P	Hex Inverter Dual 4-Input Power	
00/354435%	WICOTTI	NAND Gate	
U6A994559X	MC845P	Clocked Flip-Flop	
U6A994659X	MC846P	Quad 2-Input NAND	
		Gate	
U6A994859X	MC848P	Clocked Flip-Flop	
U6A994959X	MC849P	Quad 2-Input NAND Gate with 2 k	
		Pullup Resistor	
U6A995059X	MC850P	Pulse Triggered Binary	
U6A995159X	MC851P	Monostable	
}		Multivibrator	
U6A996159X	MC861P	Dual 4-Input NAND	
		Gate 2 k	
U6A996259X	MC862P	Pullup Resistor Triple 3-Input NAND	
00/1880208/	NICOUZE	Gate	
U6A996359X	MC863P	Triple 3-Input NAND	
		Gate with 2 k	
		Pullup Resistor	
ІП			
MIC930-1B	MC930F	Dual 4-Input Gate	
MIC930-1C	MC930G	Dual 3-2 Input Gate	
MIC930-5B	MC830F	Dual 4-Input Gate	
MIC930-5C MIC932-1B	MC830G MC932F	Dual 3-2 Input Gate	
MIC932-1B MIC932-1C	MC932F	Dual 4-Input Buffer Dual 3-2 Input Buffer	
MIC932-1C	MC832F	Dual 4-Input Buffer	
MIC932-5C	MC832G	Dual 3-2 Input Buffer	
MIC933-1B	MC933F	Dual 4-Input Expander	
MIC933-1C	MC933G	Dual 4-3 Input	
		Expander	
MIC933-5B	MC833F	Dual 4-Input Expander	
MIC933-5C	MC833G	Dual 4-3 Input	
MIC936-1B	MCOSEE	Expander	
MIC936-5B	MC936F MC836F	Hex Inverter Hex Inverter	
MIC937-1B	MC937F	Hex Inverter Hex Inverter	
MIC937-5B	MC837F	Hex Inverter	
MIC944-1B	MC944F	Dual 4-Input Power	
		Gate	
MIC944-1C	MC944G	Dual 3-2 Input	
MICOAAES	MC844F	Power Gate	
MIC944-5B	WIC844F	Dual 4-Input Power Gate	
MIC944-5C	MC844G	Dual 3-2 Input Power	
		Gate	
MIC945-1B	MC945F	Clocked Flip-Flop	
MIC945-1C	MC945G	Clocked Flip-Flop	
MIC945-5B	MC845F	Clocked Flip-Flop	
MIC945-5C	MC845G	Clocked Flip-Flop	
MIC946-1B	MC946F	Quad 2-Input Gate	
MIC946-58	MC846F	Quad 2-Input Gate	
MIC948-1B	MC948F	Clocked Flip-Flop	
MIC948-1C	MC948G	Clocked Flip-Flop	
MIC948-5B	MC848F	Clocked Flip-Flop	
MIC948-5C MIC949-1B	MC848G MC949F	Clocked Flip-Flop Quad 2-Input Gate	
MIC949-1B MIC949-5B	MC849F	Quad 2-Input Gate Quad 2-Input Gate	
MIC950-1B	MC950F	Pulse Triggered Binary	
MIC950-1C	MC950G	Pulse Triggered Binary	
MIC950-5B	MC850F	Pulse Triggered Binary	
MIC950-5C	MC850G	Pulse Triggered Binary	
MIC951-1B	MC951F	Monostable	
MICOET 10	MC0E1C	Multivibrator	
MIC951-1C	MC951G	Monostable Multivibrator	
MIC951-5B	MC851F	Monostable	
		Multivibrator	
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Part Number	Motorola Direct Replacement	Description
MIC951-5C	MC851G	Monostable
		Multivibrator
MIC961-1B	MC961F	Dual 4-Input Gate
MIC961-1C	MC961G	Dual 3-2 Input Gate
MIC961-5B	MC861F	Dual 4-Input Gate
MIC961-5C	MC861G	Dual 3-2 Input Gate
MIC962-1B	MC962F	Triple 3-Input Gate
MIC962-5B	MC862F	Triple 3-Input Gate
MIC963-1B	MC963F	Triple 3-Input Gate
MIC963-5B	MC863F	Triple 3-Input Gate
WIC303-3B	WICOBSF	Triple 3-Input Gate
_		
Philco		
PE9930	MC830P	Dual 4-Input NAND
		Gate
PE9932	MC832P	Dual 4-Input Buffer
PE9933	MC833P	Dual 4-Input Gate
*		Expander
PE9944	MC844P	Dual 4-Input Power
DE004=		NAND Gate
PE9945	MC845P	Clocked Flip-Flop
PE9946	MC846P	Quad 2-Input NAND
BE0040	1400400	Gate
PE9948	MC848P	Clocked Flip-Flop
PE9962	MC862P	Triple 3-Input
·		NAND Gate
PL9930 51	MC930F	Dual 4-Input NAND
	l	Gate
PL9930 59	MC830F	Dual 4-Input NAND
B1 0004 B4		Gate
PL9931 51	MC931F	Clocked Flip-Flop
PL9931 59	MC831F	Clocked Flip-Flop
PL9932 51	MC932F	Dual 4-Input Buffer
PL9932 59	MC832F	Dual 4-Input Buffer
PL9933 51	MC933F	Dual 4-Input Expander
PL9933 59	MC833F	Dual 4-Input Expander
PL9936 51	MC936F	Hex Inverter
PL9936 59	MC836F	Hex Inverter
PL9944 51	MC944F	Dual 4-Input Power
		NAND Gate
PL9944 59	MC844F	Dual 4-Input Power
•		NAND Gate
PL9945 51	MC945F	Clocked Flip-Flop
PL9945 59	MC845F	Clocked Flip-Flop
PL9946 51	MC946F	Quad 2-Input NAND
		Gate
PL9946 59	MC846F	Quad 2-Input NAND
		Gate
PL9948 51	MC948F	Clocked Flip-Flop
PL9948 59	MC848F	Clocked Flip-Flop
PL9950 51	MC950F	Pulse Triggered Binary
PL9950 59	MC850F	Pulse Triggered Binary
PL9951 51	MC951F	Monostable
		Multivibrator
PL9951 59	MC851F	Monostable
		Multivibrator
PL9962 51	MC962F	Triple 3-Input NAND
		Gate
PL9962 59	MC862F	Triple 3-Input NAND
		Gate
RCA		
1100		
CD2300/930	MC930F	Dual 4-Input Gate
CD2300E/830	MC830P	Dual 4-Input Gate
CD2301/961	MC961F	Dual 4-Input Gate
CD2301E/861	MC861P	Dual 4-Input Gate
CD2302/946	MC946F	Quad 2-Input Gate
CD2302E/846		Quad 2-Input Gate
CD2303/949	MC949F	Quad 2-Input Gate

MDTL (cont.)

Part Number Replacement Discription Replacement							
CD2304/945 MC845F CDc230E/948 MC845F CDc230E/948 MC846F CDc230E/948 MC846F CDc230E/948 MC846F CDc230E/948 MC846F CDc230E/842 MC826F CDc230E/842 MC826F CDc230E/842 MC826F CDc230E/842 MC826F CDc230E/842 MC826F CDc230E/842 MC846F CDc230E/842 MC846F CDc230E/842 MC846F CDc230E/842 MC846F CDc230E/842 MC846F CDc230E/842 MC846F CDc230E/842 MC866F			Description			Direct	Description
CD2304/945 MC948F CDc240E File-Fiop CD230E/948 MC948F CD230E/948 MC948F CD230E/948 MC948F CD230E/948 MC948F CDc240E/948 MC948F CD230E/942 MC948F CD230E/942 MC948F CD230E/942 MC944F CD240E/942 MC944F CD230E/942 MC944F CD230E/942 MC944F CD230E/944 MC944F CD230E/946 MC944F CD230E/962 MC962F CD230E/962 MC962F CD230E/962 MC962F CD230E/962 MC962F CD230E/963 MC963F MC963F MC962F CD230E/963 MC963F MC962F CD230E/963 MC963F MC962F MC96	CD2303E/849	MC849P	Quad 2-Input Gate		RM945.I	MC945F	Clocked Flin-Flon
CD2204E/845 MCC848F Clocked Flip-Flop							
CD2305/948 MCC498F Clocked Flip-Flop CD2305/932 MC632F Dual 4-Input Buffer RM9481 MC948G Clocked Flip-Flop CD2305/932 MC632F Dual 4-Input Buffer RM9481 MC948G Clocked Flip-Flop Cd2305/944 MC944F Dual 4-Input Power Gate Cd2305/944 MC944F Dual 4-Input Power Gate Cd2305/942 MC944F Dual 4-Input Dower Cd2305/962 MC962F CD2308/962 MC962F CD2308/962 MC962F CD2308/963 MC963F CD23019/936 MC963F CD23019/936 MC963F CD23019/936 MC963F CD23019/936 MC936F Hex Inverter Hex Inverter Hex Inverter Hex Inverter Hex Inverter Hex Inverter RM9931 MC963F Dual 4-Input Expander Dual 4-Input Expander SW705-1F MC955F Dual J-K Flip-Flop Dual J-K Flip-F							
CD2209E/848 MCC848P Clocked Flip-Flop Dual 4-Input Buffer Dual 4-Input Power Gate CD2207/944 MC944F CD2307/944 MC944F CD2307/944 MC944F CD2308/962 MC962F Triple 3-Input Gate CD2308/962 MC962F Triple 3-Input Gate CD2308/962 MC962F Triple 3-Input Gate CD2308/963 MC9636 MC9636 Triple 3-Input Gate CD2308/963 MC9636 MC9					11110-100	11100-101	
CD2306/932 MC932F Dual 4-Input Buffer RM9481 MC948F Clocked Flip-Flop Dual 4-Input Buffer RM9481 MC948F Clocked Flip-Flop Care					DMOVET	MCQ46G	
CD2307/944 MC9487 CD2307/944 MC9487 CD2307/944 MC9487 CD2307/944 MC9487 CD2307/944 MC9487 CD2307/942 MC9487 MC9487 CD2307/942 MC9487				.			
CD2307/944 MC944F CD4 All put Power Gate CD2308/962 MC864P CD4							
CD2307E/844 MC844P CD2307E/844 MC844P CD2309E/862 CD2309E/863 CD2309E/86							
CD2307/6/244 MC844P CDa1 4-Input Power Gate CD2308/6/62 MC962F CD2308/6/62 MC962F Triple 3-Input Gate Triple 3-Input Gate CD2309/6/36 MC963F MC963F Triple 3-Input Gate CD2309/6/36 MC963F MC963F Triple 3-Input Gate CD2311/9/36 MC930F MC930F MC930F MC930F MC963F	CD2307/944	WC944F					
CD2308/962	0000075/044						
CD2308E/862 MC862P Triple 3-Input Gate CD2310/936 MC963F CD2311/937 MC938F Hex Inverter Hex Inverter Hex Inverter Hex Inverter Hex Inverter Hex Inverter CD23114/933 MC933F Hex Inverter Hex Inverter Hex Inverter Hex Inverter CD2314/933 MC933F Hex Inverter Hex Inverter Hex Inverter Hex Inverter CD2314/933 MC933F Hex Inverter CD2314/933 MC933F Hex Inverter H			Gate				Multivibrator
CD2309/963 MC963F Triple 3-Input Gate CD2309/963 MC936F CD2310/936 MC936F CD2311/937 MC937F Hex Inverter Hex Inverter Hex Inverter Hex Inverter CD23114/933 MC937F Hex Inverter Hex Inverter Hex Inverter Hex Inverter Hex Inverter CD23114/933 MC937F Hex Inverter					RM951T	MC951G	Monostable
CD2309E/863 MC3862F Hex Inverter Hex Invert	CD2308E/862	MC862P	Triple 3-Input Gate				Multivibrator
CD2310/936 CD2316/936 CD2316/936 CD2316/937 CD2311/937 CD2311/937 CD23116/937 CD23116/937 CD23116/937 CD23116/933 CD23116/937 CD2314E/833 CD2314	CD2309/963	MC963F	Triple 3-Input Gate		RM962J	MC962F	Triple 3-Input
CD2310E/836 CD2311E/837 CD2311E/837 CD2311E/837 CD2314/933 CD2314/934 CD2314/934 CD2314/94/94 CD2314/94/94 CD2314/94/94 CD2314/94/94 CD2314/94/94 CD2314/94/94 CD2314/94/94 CD2314/94/94 CD2314/94/94/94 CD2314/94/94/94 CD2314/94/94/94/94/94/94/94/94/94/94/94/94/94	CD2309E/863	MC863P	Triple 3-Input Gate				NAND Gate
CD2310E/836 CD2311E/837 CD2311E/837 CD2311E/837 CD2314/933 CD2314/934 CD2314/94/94 CD2314/94/94/94 CD2314/94/94/94 CD2314/94/94/94 CD2314/94/94/94/94/94/94/94/94/94/94/94/94/94	CD2310/936	MC936F	Hex Inverter		RM962T	MC962G	Dual 2-Input NAND
CD23114/937 CD2314/937 CD			Hex Inverter				
CD2314/933 MC937F CD2314/933 MC933F CD2314/933 MC933F CD2314/933 MC933F CD2314/933 MC933F CD2314E/833 MC833P Dual 4-Input Expander Expander Expander CD2314E/833 MC833F CD2414/100 Expander CD2314E/833 MC833F CD2414/100 Expander CD2314E/833 MC833F CD2414/100 Expander CD2314E/833 MC833F CD2414/100 CD2414/10					BM9931	MC953E	
CD2314/933 MC933F CD2314E/833 MC833P Expander							
Raytheon							
Raytheon	OD2314/333	MICASSE					
Raytheon	CD221 #E /022	MCOSSB			UMAAAN	IVIC952F	Dual 3-K Filip-Flop
Reytheon RC930J MC830F Dual 4-Input NAND Gate SW706-1F SW706-2F MC853F Dual J-K Flip-Flop Dual	UDZ314E/833	IVICO33F				*	•
RC930J MC830F Dual 4-Input NAND Gate SW706-2F SW706-1F MC956F Dual J-K Flip-Flop Dual J-K Flip-F	Raytheon	<u> </u>				MCOESE	Dual IV Elia Etan
RC930T MC830G Dual 3-2 Input NAND Gate SW706-2F MC852F Dual J-K Flip-Flop Dua	BC0301	MCGOCE	Dual 4 Input NAME				
RC930T MC830G Dual 3-2 Input NAND Gate SW706-2F SW708-1F MC956F Dual J-K Flip-Flop Dual J-K Flip	LC9300	IVICOSUF					
Gate Dual 4-Input Buffer SW708-1F MC956F Dual J-K Flip-Flop SW930-1T MC930F Dual J-K Flip-Flop D		l					
RC932J MC832F RC932T MC832F MC833F Dual 3-2 Input Buffer Dual 3-2 Input Buffer SW709-1F MC930F Dual J-K Flip-Flop	RC930T	MC830G	•				
RC932T MC832G RC933J MC833G RC933J MC833F Dual 3-2 Input Buffer Dual 4-Input Expander SW709-2F MC855F Dual J-K Flip-Flop SW930-1F MC930G Dual 3-2 Input Gate Dual 3-2 Input Gate SW930-2T MC930G Dual 3-2 Input Gate Dual 3-2 Inpu							
RC933J RC933F RC933F RC933F RC933F RC933F RC933F RC944J RC944F RC944J MC844F RC945J RC945J RC945J RC945J RC945J RC945J MC845F RC945J MC845F RC945J MC845F RC946J MC846F RC960J MC850F Pulse Triggered Binary Pulse Triggered Binary RC950J MC850F MC850F Multivibrator Multivibrator Mc850G RC962J MC850F MUltivibrator MC850F RC962J MC850F RC					SW708-2F	MC856F	Dual J-K Flip-Flop
RC933T MC833G RC944J MC844F Dual 4-1 nput Expander Dual 4-1 nput Power NAND Gate Dual 3-2 1 nput Gate Dual 4-1 nput Gate Dual 3-2 nput Power Gate Dual 3-2 nput Gate Dual 3-2 nput Power Ga	RC932T	MC832G	Dual 3-2 Input Buffer		SW709-1F	MC955F	Dual J-K Flip-Flop
RC944J MC844F Dual 4-Input Power NAND Gate SW930-2F MC830F Dual 4-Input Gate Dual 3-2 Input Gate SW930-2F MC830F Dual 4-Input Gate Dual 4-Input Gate SW930-2F MC830F Dual 4-Input Gate Dual 4-Input Gate SW932-1F MC930F Dual 3-2 Input Gate Dual 4-Input Gate SW932-1F MC930F Dual 4-Input Gate Gate Dual 4-Input Gate Gate Dual 4-Input Gate Dual 4-Input Gate Gate Dual 4-Input Gate Dual 4-Input Gate Gate Dual 4-Input Gate Gate Dual 4-Input Gate Dual 4-Input Gate Dual 4-Input Gate Dual 4-Input Gate Gate Dual 4-Input Gate Gate Dual 4-Input Gate Dual 4-Input Gate Gate Dual 4-Input Gate Gate Dual 4-Input Gate Gate Dual 4-Input Gate Dual 4-Input Gate Gate Gate Dual 4-Input Gate Gate Gate Dual 4-Input Gate Gate Gate Gate Dual 4-Input Gate	RC933J	MC833F	Dual 4-Input Expander		SW709-2F	MC855F	Dual J-K Flip-Flop
RC944J MC844F Dual 4-Input Power NAND Gate NAND Gate SW930-2F MC830F Dual 4-Input Gate Dual 3-2 Input Gate Dual 4-Input Gate Gate Dual 4-Input Gate Dual 4-Input Gate Gate Gate Dual 4-Input Gate Dual 4-Input Gate Gate Gate Dual 4-Input Gate Gate Gate Gate Gate Dual 4-Input Functor Gate Gate Dual 4-Input Functor Gate Dual 4-In	RC933T	MC833G	Dual 4-3 Input Expander		SW930-1F	MC930F	Dual 4-Input Gate
RC944T MC844G	RC944J	MC844F			SW930-1T	MC930G	
RC944T MC844G Dual 3-2 Input Power NAND Gate SW932-1F SW932-1F MC932F Dual 3-2 Input Buffer Dual 3-2 Input Power Gate Du					SW930-2F	MC830F	
NAND Gate SW932-1F MC932F Dual 4-Input Buffer Dual 3-2 Input	RC944T	MC844G					
RC945J RC945T RC946T RC946J MC845F MC846G MC846F MC846G RC948G MC848F RC948T MC848G RC948T MC848G RC948T MC848G RC950J MC850F RC951J Clocked Flip-Flop Quad Inverter Clocked Flip-Flop Pulse Triggered Binary Monostable Multivibrator RC951T SW932-2T MC850F Pulse Triggered Binary Monostable Multivibrator Multivibrator RC951T MC933F MC851F MC851G MC851F MC933F Pulse Triggered Binary Monostable Multivibrator Multivibrator SW933-1F SW933-2F MC833F MC933G Dual 4-1 Input Expander Dual 4-1 Input Expander RC951T RC962T MC862F MC862G Triple 3-Input NAND Gate SW933-2F SW933-2F MC836F MC833G MC833F MC833F MC833G MC837F MC937F MC936F Hex Inverter RC993J RC994J RC997J MC855F RC997J MC855F RM930J MC856F Dual J-K Flip-Flop Dual J-K Fli							
RC945T MC845G RC946J MC846F RC946J MC846F Gate Quad 2-Input NAND Gate Quad 1-Input NAND Gate Quad 1-Input NAND Gate Sw932-2F MC832F Dual 4-Input Buffer Dual 3-2 Input	RC945.I	MC845F		l i			
RC946J MC846F Quad 2-Input NAND Gate SW932-2F SW932-2T MC832F Dual 3-2 Input Buffer Dual 3-2 Input Power Gate Clocked Flip-Flop Dual 4-Input Power Gate Dual 3-2 Input Power Gate Dual					01100E 11	14100020	
Gate Sw932-2T MC832G Dual 3-2 Input Buffer Sw932-3T MC832G Dual 3-2 Input Buffer Sw932-3T MC832G Dual 3-2 Input Buffer Sw933-1F MC933F MC933F MC848G Clocked Flip-Flop Clocked Flip-Flop Clocked Flip-Flop Pulse Triggered Binary Sw933-1T MC933G Dual 4-3 Input Expander Dual 4-3 Input Dua					CIMD22 2E	MC922E	1 -
RC948G RC948T RC948T RC950J RC950J RC950J RC950T RC950T RC951J MC850G RC951J MC851F MC848F VC10cked Flip-Flop Pulse Triggered Binary Monostable Multivibrator Monostable Multivibrator SW933-1F SW933-2T MC833F MC933G Dual 4-3 Input Expander Dual 4-1nput Expander RC951T RC951T MC851G MC851G MC851G Monostable Multivibrator SW933-2F MC833F MC833F Dual 4-3 Input Expander Dual 4-3 Input Expander RC962J RC962J MC862F MC862G Triple 3-Input NAND Gate SW933-2T SW936-1F SW936-2F SW937-1F SW937-1F SW937-2F MC837F MC936F Hex Inverter Hex Inverter RC993J RC994J RC994J RC997J RC999J RC930F MC855F Dual J-K Flip-Flop Dual J-K			Gate				Dual 3-2 Input
RC948T RC950J MC850F RC950J MC850F RC950T MC850G RC951J MC851F MUltivibrator Multivibrator Monostable Multivibrator MC862F MC866F MC8							
RC950J MC850F RC950T MC850G RC951J MC851F MC850G MC851F M					SW933-1F	MC933F	
RC950T RC951J MC851F MC851F MC851F MC851F MC851F MC851F MUltivibrator Multivibrator MC851G Multivibrator Multivibrator MC851G Multivibrator MC851G Multivibrator MC862F Triple 3-Input NAND Gate SW933-2F MC833G Dual 4-3 Input Expander Expander Expander Hex Inverter H						Ì	
RC951J MC851F Monostable Multivibrator SW933-2F MC833F Dual 4-Input Expander RC962J MC862F Multivibrator Monostable Multivibrator SW933-2T MC833G Dual 4-3 Input Expander RC962J MC862F Triple 3-Input NAND Gate SW936-1F MC936F Hex Inverter RC962T MC862G Dual 2-Input NAND Gate Plus Inverter SW937-1F MC937F Hex Inverter RC993J MC853F Dual J-K Flip-Flop SW944-1F MC94F Hex Inverter RC994J MC856F Dual J-K Flip-Flop SW944-1F MC944F Dual 4-Input Power RC999J MC852F Dual J-K Flip-Flop SW944-2F MC844F Dual 4-Input Power Gate RM930T MC930G Dual 3-2 Input NAND Gate SW944-2T MC844G Dual 3-2 Input Power Gate RM930T MC930G Dual 3-2 Input NAND Gate SW945-1F MC945F Clocked Flip-Flop			Pulse Triggered Binary	l i	SW933-1T	MC933G	Dual 4-3 Input
RC951T MC851G Multivibrator Monostable Multivibrator Monostable Multivibrator SW933-2T MC833G Dual 4-3 Input Expander Hex Inverter		MC850G	Pulse Triggered Binary				Expander
RC951T MC851G Monostable Multivibrator SW933-2T MC833G Dual 4-3 Input Expander RC962J MC862F Triple 3-Input NAND Gate SW936-1F MC936F Hex Inverter RC962T MC862G Dual 2-Input NAND Gate Plus Inverter SW937-1F MC937F Hex Inverter RC993J MC853F Dual J-K Flip-Flop SW944-1F MC944F Hex Inverter RC994J MC856F Dual J-K Flip-Flop SW944-1F MC944F Dual 4-Input Power RC999J MC855F Dual J-K Flip-Flop SW944-1T MC944G Dual 3-2 Input RM930T MC930G Dual 3-2 Input NAND Gate SW944-2F MC844F Dual 3-2 Input RM930T MC930G Dual 3-2 Input NAND Gate SW945-1F MC945F Clocked Flip-Flop	RC951J	MC851F			SW933-2F	MC833F	
RC962J MC862F Triple 3-Input NAND Gate SW936-1F SW936-2F MC836F Hex Inverter H	RC951T	MC851G	Monostable		SW933-2T	MC833G	Dual 4-3 Input
Gate	D0000:				0111000 15		
RC962T MC862G Dual 2-Input NAND Gate Plus Inverter SW937-1F SW937-2F MC837F Hex Inverter Hex	HC962J	MC862F					
Gate Plus Inverter SW937-2F MC837F MC837F MC857F MC847F MC947F MC947F MC947F MC847F MC847	4						
RC993J MC853F Dual J-K Flip-Flop SW944-1F MC944F Dual 4-Input Power Gate RC994J MC856F Dual J-K Flip-Flop SW944-1T MC944G Dual 3-2 Input Power Gate RC999J MC852F Dual J-K Flip-Flop SW944-2F MC844F Dual 4-Input Power Gate RM930J MC930F Dual 4-Input NAND Gate SW944-2T MC844F Dual 3-2 Input Power Gate RM930T MC930G Dual 3-2 Input NAND Gate SW944-2T MC844G Dual 3-2 Input Power Gate SW945-1F MC945F Clocked Flip-Flop	RC962T	MC862G	Dual 2-Input NAND				
RC994J MC856F RC997J MC855F RC999J MC852F RM930J MC930F RM930T MC930G MC930G MC930G MC930G MC930F MC930G MC930F MC944-2T MC944G MC944G MC944G MC944G MC944G MC944F MC844F MC844F MC844G Dual 3-2 Input Power Gate Dual 3-2 Input Power Gate Clocked Flip-Flop	Deces:						
RC997J MC855F Dual J-K Flip-Flop SW944-1T MC944G Dual 3-2 Input Power Gate Dual 4-Input NAND Gate Dual 3-2 Input Power Gate SW944-2T MC844F Gate Dual 3-2 Input Power Gate SW944-2T MC844G Dual 3-2 Input Power Gate SW945-1F MC945F Clocked Flip-Flop Clocked Fli		MC853F			SW944-1F	MC944F	
RC997J MC855F Dual J-K Flip-Flop SW944-1T MC944G Dual 3-2 Input Power Gate Dual 4-Input NAND Gate Dual 3-2 Input NAND Gate Dual 3-2 Input NAND Gate SW944-2T MC844G Dual 3-2 Input Power Gate SW944-2T MC844G Dual 3-2 Input Power Gate SW945-1F MC945F Clocked Flip-Flop	RC994J	MC856F	Dual J-K Flip-Flop				
RC999J MC852F MC930F Dual J-K Flip-Flop Dual 4-Input NAND Gate RM930T MC930G Dual 3-2 Input NAND Gate Dual 3-2 Input NAND Gate SW944-2T MC844G Dual 3-2 Input Power Gate SW944-2T MC844G Dual 3-2 Input Power Gate SW945-1F MC945F Clocked Flip-Flop	RC997J	MC855F			SW944-1T	MC944G	
RM930J MC930F Dual 4-Input NAND Gate SW944-2F MC844F Dual 4-Input Power Gate SW944-2T MC844F Dual 3-2 Input Gate SW944-2T MC844F Dual 3-2 Input Power Gate SW944-2T MC844F Dual 3-2 Input Gate SW944-2T MC844F Dual 3-2 Input Fower Gate SW944-2T MC844F Dual 4-Input Power Gate Clocked Flip-Flop							
RM930T MC930G Dual 3-2 Input NAND Gate SW944-2T MC844G Dual 3-2 Input Power Gate SW945-1F MC945F Clocked Flip-Flop			Dual 4-Input NAND		SW944-2F	MC844F	• • •
Gate SW945-1F MC945F Clocked Flip-Flop	RM930T	MC930G			SW944-2T	MC844G	Dual 3-2 Input
			Gate		SW945-1F	MC945F	
RM932J MC932F Dual 4-Input Buffer SW945-1T MC945G Clocked Flip-Flop	RM932J	MC932F	Dual 4-Input Buffer				
The state of the s							
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	LUNISCOCI	MICOSSE					
Expander SW946-1F MC946F Quad 2-Input Gate	DMOOOT	B400000					
RM933T MC933G Dual 4-3 Input Expander SW946-1T MC946G Quad Inverter				.			
RM944J MC944F Dual 4-Input Power SW946-2F MC846F Quad 2-Input Gate	нм944Ј	MC944F		-	SW946-2F	MC846F	
NAND Gate SW946-2T MC846G Quad Inverter					SW946-2T	MC846G	Quad Inverter
RM944T MC944G Dual 3-2 Input Power SW948-1F MC948F Clocked Flip-Flop	RM944T	MC944G	Dual 3-2 Input Power		SW948-1F	MC948F	Clocked Flip-Flop
NAND Gate SW948-1T MC948G Clocked Flip-Flop			NAND Gate	j			

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Part	Motorola	Denovieties
Number	Direct Replacement	Description
SW948-2F	MC848F	Clocked Flip-Flop
SW948-2T	MC848G	Clocked Flip-Flop
SW949-1F	MC949F	Quad 2-Input Gate
SW949-1T	MC949G	Quad Inverter
SW949-2F	MC849F	Quad 2-Input Gate
SW949-2T	MC849G	Quad Inverter
SW950-1F	MC950F	Pulse Triggered Binary
SW950-1T	MC950G	Pulse Triggered Binary
SW950-2F	MC850F	Pulse Triggered Binary
SW950-2T	MC850G	Pulse Triggered Binary
SW951-1F	MC951F	Monostable Multivibrator
SW951-1T	MC951G	Monostable Multivibrator
SW951-2F	MC851F	Monostable Multivibrator
SW951-2T	MC851G	Monostable Multivibrator
SW961-1F	MC961F	Dual 4-Input Gate
SW961-1T	MC961G	Dual 3-2 Input Gate
SW961-11	MC861F	Dual 4-Input Gate
SW961-2F	MC861G	Dual 3-2 Input Gate
SW962-1F	MC962F	Triple 3-Input Gate
SW962-1T	MC962G	Dual 2-Input Gate
3002-11	WC302G	Plus Inverter
SW962-2F	MC862F	Triple 3-Input Gate
SW962-2T	MC862G	Dual 2 Input Gate
		Plus Inverter
SW963-1F	MC963F	Triple 3-Input Gate
SW963-1T	MC963G	Dual 2-Input Gate Plus Inverter
SW963-2F	MC863F	Triple 3-Input Gate
SW963-2T	MC863G	Dual 2-Input Gate
31/303-21	WCOOSG	Plus Inverter
Sylvania		
S9301-02	MC930F	Dual 4-Input NAND
39301-02	WICSSUP	Gate
S9303-02	MC830F	Dual 4-Input NAND Gate
S9311-02	MC931F	Clocked Flip-Flop
S9313-02	MC831F	Clocked Flip-Flop
S9321-02	MC932F	Dual 4-Input Buffer
S9323-02	MC832F	Dual 4-Input Buffer
S9331-02	MC933F	Dual 4-Input Expander
S9333-02	MC833F	Dual 4-Input Expander
S9441-02	MC944F	Dual 4-Input Power
S9443-02		NAND Gate
	MC844F	Dual 4-Input Power NAND Gate
S9451-02 S9453-02	MC945F MC845F	Clocked Flip-Flop
S9463-02 S9461-02	MC946F	Clocked Flip-Flop Quad 2-Input NAND
S9463-02	MC846F	Gate Quad 2-Input NAND Gate
S9481-02	MC948F	Clocked Flip-Flop
S9483-02	MC848F	Clocked Flip-Flop
S9621-02	MC962F	Triple 3-Input NAND Gate
S9623-02	MC862F	Triple 3-Input NAND
00020 02	11100021	Gate
Texas		
Instruments		10 m
CNI4E000	MC830F	Dual 4-Input NAND Gate
SN 15830	MC830P	Dual 4-Input NAND Gate
SN 15830N	111.00001	
	MC831F	Clocked Flip-Flop
SN 15830N	,	
SN 15830N SN 15831	MC831F	Clocked Flip-Flop
SN15830N SN15831 SN15831N	MC831F MC831P	

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Part Number	Motorola Direct Replacement	Description
SN15833N	MC833P	Dual 4-Input Expander
SN15844	MC844F	Dual 4-Input Power
		NAND Gate
SN15844N	MC844P	Dual 4-Input Power NAND Gate
SN 15845	MC845F	Clocked Flip-Flop
SN15845N	MC845P	Clocked Flip-Flop
SN15846	MC846F	Quad 2-Input NAND Gate
SN15846N	MC846P	Quad 2-Input NAND Gate
SN 15848	MC848F	Clocked Flip-Flop
SN15848N	MC848P	Clocked Flip-Flop
SN15850	MC850F	Pulse Triggered Binary
SN15850N	MC850P	Pulse Triggered Binary
SN15851	MC851F	Monostable Multivibrator
SN15851N	MC851P	Monostable Multivibrator
SN15862	MC862F	Triple 3-Input NAND Gate
SN15862N	MC862P	Triple 3-Input NAND
SN15930	MC930F	Dual 4-Input NAND Gate
SN15931	MC931F	Clocked Flip-Flop
SN15932	MC932F	Dual 4-Input Buffer
SN15933	MC933F	Dual 4-Input Expander
SN15944	MC944F	Dual 4-Input Power NAND Gate
SN15945	MC945F	Clocked Flip-Flop
SN15946	MC946F	Quad 2-Input NAND Gate
SN15948	MC948F	Clocked Flip-Flop
SN15950	MC950F	Pulse Triggered Binary
SN15951	MC951F	Monostable Multivibrator
SN15962	MC962F	Triple 3-Input NAND Gate

DTL

Signetics		
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CS700G	MC207F	Dual 3-2 Input NAND Gate
CS700K	MC207G	Dual 3-2 Input NAND Gate
CS701G	MC208F	Dual 3-2 Input NAND Gate
CS701K	MC208G	Dual 3-2 Input NAND Gate
CS704G	MC210F	Clocked R-S Flip-Flop
CS704K	MC210G	Clocked R-S Flip-Flop
CS705G	MC215F	Dual 3-Input AND Gate Expander
CS705K	MC215G	Dual 3-Input AND Gate Expander
CS709G	MC217F	Dual 3-Input Diode Array
CS709K	MC217G	Dual 3-Input Diode Array
NE101G.	MC251F	4-Input NAND Gate
NE101K	MC251G	4-Input NAND Gate
NE102G	MC252F	3-Input NAND Gate
NE102K	MC252G	3-Input NAND Gate
NE105G	MC253F	6-Input AND Gate Expander
NE105K	MC253G	6-Input AND Gate Expander
NE110G	MC254F	3-Input Power NAND Gate
NE110K	MC254G	3-Input Power NAND Gate

DTL (cont.)

DIL (cont.)		
Part Number	Motorola Direct Replacement	Description
NE115G	MC256F	Dual 2-Input NAND Gate
NE115K	MC256G	Dual 2-Input NAND Gate
NE124G	MC259F	Clocked R-S Flip-Flop
NE124K	MC259G	Clocked R-S Flip-Flop
NE150G	MC255F	Line Driver
NE150K	MC255G	Line Driver
NE700G	MC257F	Dual 3-2 Input
		NAND Gate
NE700K	MC257G	Dual 3-2 Input
		NAND Gate
NE701G	MC258F	Dual 3-2 Input
		NAND Gate
NE701K	MC258G	Dual 3-2 Input
1		NAND Gate
SE101G	MC201F	4-Input NAND Gate
SE101K	MC201G	4-Input NAND Gate
SE102G	MC202F	3-Input NAND Gate
SE102K	MC202G	3-Input NAND Gate
SE105G	MC203F	6-Input AND Gate Expander
SE105K	MC203G	6-Input AND Gate Expander
SE110G	MC204F	3-Input Power NAND Gate
SE110K	MC204G	3-Input Power NAND Gate
SE115G	MC206F	Dual 2-Input NAND Gate
SE115K	MC206G	Dual 2-Input NAND Gate
SE124G	MC209F	Clocked R-S Flip-Flop
SE124K	MC209G	Clocked R-S Flip-Flop
SE150G	MC205F	Line Driver
SE 150K	MC205G	Line Driver
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l	Fairchild		4.3 4	
I	U3F990021X	MC900F	Buffer	
١	U3F990022X	MC800F	Buffer	
١	U3F990321X	MC903F	3-Input NOR Gate	
I	U3F990322X	MC803F	3-Input NOR Gate	
ı	U3F990421X	MC904F	Half Adder	
ľ	U3F990422X	MC804F	Half Adder	
ľ	U3F990521X	MC905F	Half-Shift Register	
1	U3F990522X	MC805F	Half-Shift Register	
I	U3F990621X	MC906F	Half-Shift Register	
l			(w/o Inverter)	
١	U3F990622X	MC806F	Half Shift Register	
ı			(w/o Inverter)	
١	U3F990721X	MC907F	4-Input NOR Gate	
1	U3F990722X	MC807F	4-Input NOR Gate	
I	U3F991421X	MC914F	Dual 2-Input NOR Gate	
ı	U3F991422X	MC814F	Dual 2-Input NOR Gate	
١	U3F991521X	MC915F	Dual 3-Input NOR Gate	
١	U3F991522X	MC815F	Dual 3-Input NOR Gate	
ı	U3F992621X	MC926F	J-K Flip-Flop	
ı	U3F992622X	MC826F	J-K Flip-Flop	
١	U3F992721X	MC927F	Quad Inverter	
ı	U3F992722X	MC827F	Quad Inverter	
1	U5B990029X	MC700G	Buffer	
١	U5B990121X	MC901G	Counter Adapter	
۱	U5B990122X	MC801G	Counter Adapter	
١	U5B990229X	MC702G	R-S Flip-Flop	
١	U5B990329X	MC703G	3-Input NOR Gate	
ľ	U5B990421X	MC904G	Half Adder	
ı	U5B990422X	MC804G	Half Adder	
1	U5B990429X	MC704G	Half Adder	
ı	U5B990521X	MC905G	Half-Shift Register	
۱	U5B990522X	MC805G	Half-Shift Register	
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Part Number	Direct	Description
MUIIIUGI	Replacement	
U5B990529X	MC705G	Half-Shift Register
U5B990621X	MC906G	Half-Shift Register
. 1	35	(w/o Inverter)
U5B990622X	MC806G	Half-Shift Register
		(w/o Inverter)
U5B990721X	MC907G	4-Input NOR Gate
U5B990722X	MC807G	4-Input NOR Gate
U5B990729X	MC707G	4-Input NOR Gate
U5B991421X	MC914G	Dual 2-Input NOR Gate
U5B991422X	MC814G	Dual 2-Input NOR Gate
U5B991429X	MC714G	Dual 2-Input NOR Gate
U5B991621X	MC916G	J-K Flip-Flop
U5B991622X	MC816G	J-K Flip-Flop
U5B992329X	MC723G	J-K Flip-Flop
U5B997421X	MC974G	J-K Flip-Flop
U5B997422X	MC874G	J-K Flip-Flop
U5B997429X	MC774G	J-K Flip-Flop
U5C990321X	MC903G	3-Input NOR Gate
U5C990322X	MC803G	3-Input NOR Gate
U5D990021X	MC900G	Buffer
U5D990022X	MC800G	Buffer
U5D990221X	MC902G	R-S Flip-Flop
U5D990222X	MC802G	R-S Flip-Flop
U5F991521X	MC915G	Dual 3-Input NOR Gate
U5F991522X	MC815G	Dual 3-Input NOR Gate
U5F991529X	MC715G	Dual 3-Input NOR Gate
U5F992621X	MC926G	J-K Flip-Flop
U5F992622X	MC826G	J-K Flip-Flop
U5F992629X	MC726G	J-K Flip-Flop
U5F992721X	MC927G	Quad Inverter
U5F992722X	MC827G	Quad Inverter
U5F992729X	MC727G	Quad Inverter
Philco		1,11
PL9900 21	MC900G,F	Buffer
PL9901 21	MC901G.F	Counter Adapter
PL9902 21	MC902G.F	R-S Flip-Flop
PL9903 21	MC903G,F	3-Input NOR Gate
PL9904 21	MC904G,F	Half Adder
PL9904 29	MC704G,F	
PL9905.21	MC905G,F	Half Shift Register
PL9906 21		Half-Shift Register
PL9907 21		4-Input NOR Gate
PL9914 21		Dual 2-Input NOR Gate
PL9915 21		Dual 3-Input NOR Gate
PL9916 21		J-K Flip Flop
PL9923 21		J-K Flip-Flop
PL9926 21		J-K Flip-Flop
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U3F990821X .	MC908F	Half Adder
U3F990921X	MC909F	2-Input Buffer
U3F991021X	MC910F	Dual 2-Input NOR Gate
U3F991121X	MC911F	4-Input OR/NOR Gate
U3F991221X	MC912F	Half Adder
U3F991321X	MC913F	Type "D" Flip-Flop
U3F992121X	MC921F	Dual 2-Input Gate Expander
U5B990821X	MC908G	Half Adder
U5B990829X	MC808G	Half Adder
U5B990921X	MC909G	2-Input Buffer
U5B990929X	MC809G	2-Input Buffer
U5B991021X	MC910G	Dual 2-Input NOR Gate
U5B991029X	MC710G	Dual 2-Input NOR Gate
U5B991121X	MC911G	4-Input OR/NOR Gate
U5B991129X	MC811G	4-Input OR/NOR Gate
U5B991221X	MC912G	Half Adder
U5B991229X	MC812G	Half Adder
U5B991321X	MC913G	Type "D" Flip-Flop
U5B991329X	MC813G	Type "D" Flip-Flop

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Part Number	Motorola Direct Replacement	Description
U5B992121X U5B992129X		Dual 2-Input Gate Expander Dual 2-Input Gate Expander
Philco		
PL9908 21 PL9908 23 PL9909 21 PL9909 23 PL9910 21 PL9912 23 PL9911 21 PL9912 21 PL9913 21 PL9913 23 PL9921 21 PL9921 23 PL9921 23 PL9939 21 PL9939 21	MC808G,F MC909G,F MC809G,F MC910G,F	Dual 2-Input Gate 4-Input Gate 4-Input Gate Half Adder Type "D" Flip-Flop Type "D" Flip-Flop Dual 2-Input Gate Expander Dual 2-Input Gate Expander

Part Number	Motorola Direct Replacement	Description
PL9940 21 PL9940 29		J-K Flip-Flop J-K Flip-Flop

* Not pin-for-pin replacement.

Texas Instruments		
SN17 808L	MC808G	Half Adder
SN17 809L	MC809G	2-Input Buffer
SN17 810L	MC810G	Dual 2-Input Gate
SN17 811L	MC811G	4-Input Gate
SN17 812L	MC812G	Half Adder
SN17 813L	MC813G	Type "D" Flip-Flop
SN17 908L	MC908G	Half Adder
SN17 909L	MC909G	2-Input Buffer
SN17 910L	MC910G	Dual 2-Input Gate
SN17 911L	MC911G	4-Input OR/NOR Gate
SN17 912L	MC912G	Half Adder
SN17 913L	MC913G	Type "D" Flip-Flop

LINEAR INTEGRATED CIRCUITS

Operational Amplifiers

Operational Ampinion	
Amelco	
805 BE	MC1533G*
A13-215	MC1531G*
A13-251	MC1530G*
General Electric	
4JPA135	MC1531G*
	INIC 1931G
Fairchild	
U3H771231X	MC1712F
U3H771239X	MC1712CF
U31770929X	MC1709CF
U3I770931X	MC1709F
U5B770931X	MC1709G
U5B770939X	MC1709CG
U5B771231X	MC1712G
U5B771239X	MC1712CG
National	
LM101	MC1539G*
Philco	
PA70931	MC1709F
PA70931	MC1709G
PA70939	MC1709CF
PA70939	MC1709CG
PA71231	MC1712F
PA71231	MC1712G
PA71239	MC1712CF
PA71239	MC1712CG
RCA	1 0 17 12 0 0
CA3008	MC1430F*
CA3010	MC1430G*
CA3015	MC1430G*
CA3016	MC1430F*
CA3010 CA3022	MC1709CG*
CA3022 CA3031	MC1709CG*
Paythoon	L
Raytheon	T.,,,,,,,,,
RM702	MC1712CF
RM702	MC1712CG
RM702	MC1712F
RM702	MC1712G
RM709	MC1709CF

RM709	MC1709CG
RM709	MC1709F
RM709	MC1709G
RM4709	MC1437P*
Signetics	
NE505G	MC1430F*
NE505K	MC1430G*
NE505G	MC1431F*
NE505K	MC1431G*
SE505G	MC1530F*
SE505G	MC1531F*
SE505K	MC1530G*
SE505K	MC1531G*
Texas Instrume	nts
SN726	MC1430F*
SN728	MC1431F*
SN52702	MC1712F
SN52702L	MC1712G
SN52709	MC1709F
SN52709L	MC1709G
SN72702	MC1712CF
SN72702L	MC1712CG
SN72709	MC1709CF
SN72709L	MC1709CG
Westinghouse	
WS161Q	MC1531F*
WS174Q	MC1709F*
110.774	1
Hart Farmer	Alifi

High-Frequence Amplifiers

	i, -
Fairchild	
SH9004 U5D770339X	MC1110G MC1550G*
Philco	
PA713 PA7601	MC1550G* MC1550G*
RCA	
CA3002 CA3003	MC1550G* MC1550G*

CA3004 CA3014	MC1550G* MC1314G*									
Signetics										
 SE501K	MC1552G*									
Texas Instruments										
SN5510L SN5510 SN5510	MC1510G MC1510F† MC1509F									
Westinghouse										
WM1146T	MC1550G*									

Sense Amplifiers

Fairchild									
U3H771031X U3H771039X U3I771131X U5B771031X U5B771039X U5F771131X	MC1710F MC1710CF MC1711F MC1710G MC1710CG MC1711G								
Philco									
PA71031 PA71031 PA71039 PA71039	MC1710F MC1710G MC1710CF MC1710CG								
Raytheon									
RM710 RM710 RM710 RM710	MC1710CF MC1710CG MC1710F MC1710G								
Sylvania									
SA-10	MC1540F*								
Texas Instruments									
SN5500 SN52710 SN52710L SN72710 SN72710L	MC1540F* MC1710F MC1710G MC1710CF MC1710CG								

^{*} Nearest equivalent

[†]Electrically interchangeable; pin-outs different.

DIGITAL APPLICATION SELECTOR GUIDE

This table shows the various circuit functions available in each integrated circuit logic family. "F" indicates the device is available in ceramic flat package, "G" indicates metal can, and "P" indicates dual in-line plastic package.

Many of these devices have provision for expanding input capability. See individual family specifications for detail.

FUNCTION (Positive Logic)	MECL	MECL II	MHTL	MTTL	MTTLII	MTTLIII	MDTL	DTL	MRTL	mW MRTL	MOS
GATES											
Quad Inverter							G		F,G		
Hex Inverter							F,P		F,P		
3-Input OR/NOR Gate	F,G										
4-Input OR/NOR Gate										F,G	
5-Input OR/NOR Gate	F,G										
6-Input OR/NOR Gate		F,P								ŀ	
Dual 2-Input OR/NOR Gate	G	F,P								1	
Dual 4-Input OR/NOR Gate	F	F,P									
3-Input NOR Gate									F,G		
4-Input NOR Gate									F,G	1	
5-Input NOR Gate									F,G	F,G	
Dual 2-Input NOR Gate	F,G								F,G	F,G	
Dual 3-Input NOR Gate	F,G								F,G,P	F,G,P	
Dual 4-Input NOR Gate	-			-					F,G,P	F,P	
Triple 3-Input NOR Gate		F,P							F,P	F,P	
Quad 2-Input NOR Gate	F	F,P				F,P	F,P		F,P	F,P	
3-Input NAND Gate	 	, ·		1			<u> </u>	F,G	<u> </u>	· · · · · · · · · · · · · · · · · · ·	
4-Input NAND Gate			†	t				F,G		<u> </u>	
8-Input NAND Gate	 	-	 	F,P	F,P	F,P		1			
Dual 2-Input NAND Gate	-	-	 	· / ·	-	- "		F,G	 	-	
Dual 3-2 Input NAND Gate	-		+				G	F,G	 		<u> </u>
Dual 3-Input NAND Gate	-		-	1				F,G			<u> </u>
	-		P	F,P	F,P		F,P	1,0		 	
Dual 4-Input NAND Gate	ļ		<u> </u>	F,F	Г,Г			 	-		-
Dual 2-Input NAND Gate plus							G				
Inverter			P	F,P	F,P	F,P	F,P				
Triple 3-Input NAND Gate Quad 2-Input NAND Gate	-	-	P	F,P	F,P	F,P	1,,	 	-		
		-	- r	F,F	1,1	F,P				-	1
Quad 2-Input OR Gate	-		 	 		1,1		F,G			
6-Input AND Gate			 	-				F,G		-	-
Dual 3-Input AND Gate	-		· ·			F,P		1,0	 	 	
Quad 2-Input AND Gate	-	F,P	-	<u> </u>		- '.'		 	-	 	
Quad Exclusive NOR Gate	-			-					F,P		
Quad Exclusive OR Gate		F,P	-	-	-		 	 	- '	ļ	+
2-Wide 3-Input AND-OR-INVERT Gate with Gated Complement				F,P							
2-Wide 4-Input AND-OR-INVERT Gate				F,P	F,P						
3-Wide 3-Input AND-OR-INVERT Gate				F,P							
4-Wide 2-2-2-3 Input AND-OR-INVERT Gate				F,P	F,P						
Dual 2-Wide 2-Input	1			F,P	F,P	F,P					
AND-OR-INVERT Gate	<u> </u>	1				1	L	L	1		
GATE EXPANDERS					1				· · · · · · ·	Т	· ·
5-Input Gate Expander	F,G	1	<u> </u>						-		-
6-Input Gate Expander								F,G		ļ <u>.</u>	<u> </u>
Dual 2-Input Gate Expander			1						ļ	F,G	-
Dual 3-Input Gate Expander			1					F,G	1	-	-
Dual 3-4 Input Gate Expander			L		ļ		G				
Dual 4-Input Expander for NAND Gates				F,P			F,P				
Dual 4-Input Expander for AND-OR-INVERT Gates				F,P	F,P	F,P					
Dual 4-Input Gate Expander	+	1	P						F,P		
Dual 4-1 Input Gate Expander		F,P	t						<u> </u>		
4-Wide 3-2-2-3 Input Expander for				F,P	F,P						
AND-OR-INVERT Gates	+	-	+	 	 			1	F,P	F,P	\vdash
Quad 2-Input Gate Expander			+						F,P	+ ''	+

(continued on next page)

DIGITAL APPLICATION SELECTOR GUIDE (continued)

FUNCTION (Positive Logic)	MECL	MECL II	MHTL	MTTL	MTTLII	MTTLIII	MDTL	DTL	MRTL	mW MRTL	МО
FLIP FLOPS						2					
J-K Flip-Flop	F,G	F,P		F,P	F,P	F,P	F,G,P		F,G,P	F,G,P	
R-S Flip-Flop	F,G		Р	F,P					G		
Clocked R-S Flip-Flop							F,G,P	F,G			T
Type D Flip-Flop	7	F,P						,		F,G	
Dual J-K Flip-Flop			Р			F,P	F,P		F,P	F,P	
Dual Clocked R-S Flip-Flop		F,P									
Dual Type D Flip-Flop						F,P				F,P	
DRIVERS & BUFFERS											
3-Input NAND Power Gate		T	Γ	T	Γ			F,G			
Dual 3-2 Input NAND Power Gate							G				
Dual 4-Input NAND Power Gate		-				F,P	F,P				
Dual 4 Input AND Power Gate						F,P				7	
Bias Driver	F,G					,					
Line Driver	F,G		Р	F,P		F,P	F,G,P	F,G			
Lamp Driver	F,G		<u> </u>	,			G	,,-			
Dual 2-Input Clock Driver	G				•		-				
Dual 4-Input OR/NOR Clock Driver	F	Р									<u> </u>
Buffer Inverter	•							7 .	F.G		
2-Input Buffer									,,,	F.G	
Dual Buffer Inverter	-								F,G,P		
Dual 2-Input Buffer									1,0,	F,G,P	
Dual 3-2 Input Buffer				· ·			G			1,0,	<u> </u>
Dual 3-Input Buffer									F,P		1
Dual 4-Input Buffer				٠			F,P		. ,.		-
MISCELLANEOUS	L	<u> </u>	L				. ,.				
Half Adder	F,G								F,G	F,G	
Dual Half Adder	1,0								F,P	1,4	_
Full Adder		F,P							F,G	F,G	
Dual Full Adder		1,1							F,P	υ, υ	-
Full Subtractor		F,P									
Dual Full Subtractor		г,г	-						F,P		
Half-Shift Register									F,G		-
Half-Shift Register											_
(without inverter)									F,G		
Dual Half-Shift Register									F,P		
Dual Half-Shift Register											
(without inverter)					·				F,P		ŀ
Monostable Multivibrator							F,G,P				
Level Translator	F,G	F,P									
Quad Line Receiver		F,P									
1 J-K FF, 1 Expander, 2 Buffers									Р		
1 J-K FF, 1 Inverter, 2 Buffers									Р		
Dual 3-Input Diode Array								F,G			
Counter Adapter									G		
Decade Counter							F,P				
Binary Up Counter (Divide by 16)							F,P				
Data Distributor		F,P									
Dual Keyer Gate		,									, P
Frequency Divider											P
16-Bit Memory		Р								,	